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Die Head for Extruding Films with Fastening Elements which Contain Lines for Cool Air

New Claims

1. Tubular film die head (1) for extruding single-layer or multi-layer film which has at least the following features:
 - an annular die gap (11),
 - fastening means which fix at least two components (5, 7, 8, 9) with respect to one another which together border areas (14) bearing plastic melt within the tubular film die head,
 - where the fastening means (15) are structured coolant-carrying elements (24),

characterized in that

 - a plurality of fastening elements (15) structured as coolant-carrying elements is provided,
 - where a part of the fastening elements (15) contains coolant intake lines and another part contains coolant discharge lines.
2. Tubular film die head according to Claim 1,
characterized in that
the holes, through which the fastening means (15) engage, are encased, at least in part, with a thermally insulating material (25).
3. Tubular film die head according to Claim 1,

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characterized in that

in the areas of the holes in the die head (1), through which the fastening means (15) engage, cavities are provided and/or that the fastening means and the inner walls of the holes jointly form cavities in the die head (1).

4. Tubular film die head according to one of the foregoing claims,

characterized in that

the fastening elements (15) are disposed eccentrically in die head (1).

5. Tubular film die head according to one of the foregoing claims,

characterized in that

the fastening elements (15) structured as coolant-carrying elements clamp down the inner nozzle ring (9), the bars (7, 8), and the connecting plate (6) and fix them with respect to one another.

6. Tubular film die head according to one of the foregoing claims,

characterized in that

the fastening elements (15) structured as coolant-carrying elements clamp down all the components which border the melt-carrying areas.

7. Tubular film die head (1) according to one of the foregoing claims,

characterized in that

the fastening means (15) consist, at least in part, of a thermally insulating material (25) and/or contain cavities.

8. Tubular film die head (1) according to one of the foregoing claims,

characterized in that

the fastening means (15) have the form of a circular cylinder.

9. Tubular film die head (1) according to one of the foregoing claims,

characterized in that

the fastening means (15) are preferably provided

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with outer threads (22) at their ends.

10. Tubular film die head (1) according to one of the foregoing claims,
characterized in that
the fastening means (15) are provided with a head (23) at their ends.
11. Process for the mutual fixation of at least two components (5, 7, 8, 9) which together border areas (14) carrying plastic melt within the tubular film die head (1) according to the preamble of Claim 1,
characterized in that
the fixation is done with a plurality of fastening elements (15) structured as coolant-carrying elements.
12. Process according to Claim 11,
characterized in that in the mounting of the film die head
only the prefixation of the at least two components (5, 7, 8, 9) is done with lower force.
13. Process according to Claim 12,
characterized in that
by the fastening means (15) coolant is conducted through so that the contact force of the at least two components (5, 7, 8, 9) is increased by the fact that the components heat up and expand more strongly during the extrusion process than the fastening elements (15).

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